

Levee Evaluation Program

FloodSAFE VISION

A sustainable integrated flood management and emergency response system throughout California that improves public safety, protects and enhances environmental and cultural resources, and supports economic growth by reducing the probability of destructive floods, promoting beneficial floodplain processes, and lowering the damages caused by flooding.



The Department of Water Resources (DWR) is leading a multifaceted initiative called FloodSAFE California to improve integrated flood management throughout California, with an emphasis on better managing flood risk related to the State-federal flood protection system in the Central Valley. In February 2006, Governor Schwarzenegger declared a State of Emergency for California's levee system. In November 2006, California voters approved Propositions 1E and 84, providing nearly \$5 billion in state bond funds for flood protection projects statewide.



Several bills¹ passed in 2007, adding considerable new state law requirements related to flood management in the Central Valley and affecting how DWR and local entities work to manage flood risk. As a result of Senate Bill 5 (Machado), DWR is required² to evaluate the current level of performance of the State-federal flood protection system in the Central Valley³. The evaluation of current system performance is to include an estimate of the risk of levee failure, a discussion of the inspection and reviews performed, and recommendations regarding the levees and future work activities. The geotechnical engineering performed through the Urban and Non-Urban levee evaluation (ULE and NULE) projects helps flood managers understand the overall flood risks in the Central Valley and evaluate alternative changes to the flood management system to better manage the risks.



DWR is now engaged in an unprecedented effort to evaluate 470 miles of urban levees and 1,620 miles of non-urban levees for hidden defects. The ULE and NULE projects teams are evaluating State-Federal Project levees, including associated non-Project levees, to determine whether they meet defined geotechnical criteria and, where needed, identify remedial measures, including cost estimates, to meet those desired geotechnical criteria.

The information being developed through the ULE and NULE projects will be used within the Central Valley Flood Management Planning Program to inform development of two required documents: the Flood Control System Status Report and the Central Valley Flood Protection Plan.

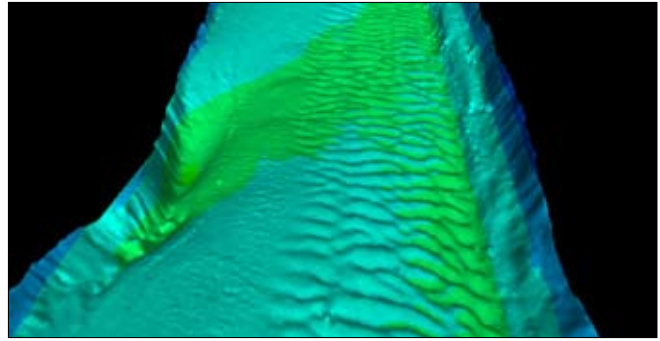
¹ Senate Bills 5 and 17; Assembly Bills 5, 70, 156, and 162; and Propositions 1E and 84 added Sections to the Government Code, Health and Safety Code, Public Resources Code, and Water Code.

² Water Code § 9120.

³ The State-federal flood protection system in the Central Valley is referred to as the State Plan of Flood Control in Section 5096.805 (j) of the California Public Resources Code. Levees within the State-federal flood protection system in the Central Valley are called "Project" levees (Water Code Section 9602(c)).



Throughout the Central Valley, levees provide essential protection for communities and farmland, preventing possible catastrophic flooding and loss of life. DWR is currently evaluating approximately 2,100 miles of levees in California's Central Valley, as shown in the figure above.



Underwater bathymetric surveys are explorations conducted using special multibeam sonar installed on custom boats. These underwater surveys provide detailed topographic data of the riverbed and riverbanks that form the base of the levee systems.

The ULE and NULE projects have multiple goals and objectives, including supporting federal and local flood management programs by providing geotechnical data, analysis, and remedial alternatives to local, state, and federal stakeholders.

Principal objectives for the ULE Project are to:

- Prepare preliminary, remedial alternatives and associated cost estimates necessary for acceptable levee performance at the estimated 200-year Water Surface Elevation by September 2012.
- Deliver the final documentation of geotechnical analysis and remedial alternatives including associated cost estimates by December 2012.
- Publish a list of available data and analysis products for use by local, State and federal stakeholders on the FloodSAFE website by January 2009.
- Provide available data and analysis products within 30 days of a request.
- Develop an interim GIS database for levee evaluation products by April 2008.
- Develop an interim GINT database for exploration products by January 2007.
- Identify critical geotechnical deficiencies that may result in levee failure during the next high water event. Recommend further analysis to the Critical Repairs program as deficiencies are identified.



Principal objectives for the NULE Project are to:

- Publish a list of available data and analysis products for use by local, state, and federal stakeholders on the FloodSAFE website by November 2009.
- Categorize all project and appurtenant non-project levees into four hazard level categories: low, moderate, or high likelihood of either levee failure or the need to flood-fight to prevent levee failure when water reaches the assessment water surface elevation, or lacking sufficient data to assess the hazard level.
- Prepare preliminary, remedial alternatives (and associated cost estimates) necessary for acceptable levee performance at the design water surface elevation by January 2011.
- Deliver final documentation of geotechnical analysis and remedial alternatives including associated cost estimates by December 2012.
- Provide available data and analysis products within 30 days of a request.
- Identify critical geotechnical deficiencies that may result in levee failure during the next high-water event.